CLAIMS

What is claimed is:

1. A system for analyzing real-time operation of a communication device, the system comprising:

a communication device comprising a recording module, wherein the recording module causes the recording of input information that is input to the communication device during real-time operation of the communication device; and

a playback device comprising a model of the communication device that the playback device executes according to the recorded input information.

2. The system of claim 1, further comprising a debugging module that provides for controlling and observing the operation of the playback device.

3. The system of claim 1, wherein the playback device is communicatively coupled to the communication device and the recording module causes the input information to be sent to the playback device during real-time operation of the communication device.

4. The system of claim 1, further comprising a computer communicatively coupled to the communication device, wherein the recording module causes the recording of the input information to a memory device of the computer.

5. The system of claim 1, wherein the input information comprises input data and input commands from a computer, and input information from a device other than the computer.

6. The system of claim 1, wherein the model of the communication device is a bit-exact software model.

7. The system of claim 1, wherein the model of the communication device comprises a device substantially similar to at least a portion of the communication device.

8. The system of claim 1, further comprising a networked computer coupled to the communication device over a computer network, and wherein the recording module causes the communication device to send the input information to the networked computer.

9. A communication device comprising:

a first input that receives information from a first device;

a second input that receives information from a second device that the first device is communicating with using the communication device; and

a recording module communicatively coupled to the first input and the second input that causes input information arriving at one or both of the first input and the second input during real-time operation of the communication device to be recorded.

10. The communication device of claim 9, further comprising a command input that receives command information from the first device, and wherein the recording module further causes command information arriving at the command input during real-time operation of the communication device to be recorded.

11. The communication device of claim 9, wherein the first device is a computer system, and wherein the recording module causes the input information arriving at one or both of the first input and the second input during real-time operation of the communication device to be recorded on a memory device of the computer system.

12. The communication device of claim 9, wherein the recording module causes the input information arriving at one of both of the first input and the second input to be communicated to a networked computer communicatively coupled to the communication device over a communication network.

13. The communication device of claim 9, wherein the communication device comprises a computer communication device.

14. A real-time operating environment for a communication device, comprising:

a memory device; and

a communication device communicatively coupled to the memory device, the communication device comprising:

a first input that receives information from a first device;

a second input that receives information from a second device that the first device is communicating with using the communication device; and

a recording module communicatively coupled to the first input, the second input and the memory device that causes information received at one or more of the first input and the second input to be stored in the memory device.

15. The real-time operating environment of claim 14, wherein the communication device further comprises a command input that receives command information from the first device, and wherein the recording module further causes command information received at the command input to be stored in the memory device.

16. The real-time operating environment of claim 14, wherein the first device comprises the memory device.

17. The real-time operating environment of claim 14, further comprising a networked computer communicatively coupled to the communication device, and wherein the networked computer comprises the memory device.

18. The real-time operating environment of claim 14, wherein the communication device is a computer communication device.

19. A non-real-time playback environment for analyzing real-time performance of a communication device, the environment comprising:

a memory having input information that was obtained from a communication device during real-time operation of the communication device; and

a playback module communicatively coupled to the memory, the playback module comprising a model of the communication device that the playback module executes according to the input information in the memory module.

20. The non-real-time playback environment of claim 19, wherein the input information comprises:

information from a computer coupled to the communication device; and

information from a device that the computer is communicating with using the communication device.

21. The non-real-time playback environment of claim 19, wherein the input information comprises data and command information sent from a computer to the communication device.

22. The non-real-time playback environment of claim 19, further comprising a debugging module communicatively coupled to the playback module that provides for controlling and observing the operation of the playback module.

23. The non-real-time playback environment of claim 19, wherein the model of the communication device is a bit-exact software model of the communication device.

24. The non-real-time playback environment of claim 19, further comprising a computer communicatively coupled to the communication device, and wherein the memory is a memory device of the computer.

25. The non-real-time playback environment of claim 24, wherein the computer comprises the playback module.

26. The non-real-time playback environment of claim 19, further comprising a networked computer communicatively coupled to the communication device over a computer network, and wherein the networked computer comprises the memory.

27. A method for analyzing real-time operation of a communication device, the method comprising:

operating the communication device in real-time, the communication device comprising a recording module;

utilizing the recording module to cause the recording of input information input to the communication device during real-time operation of the communication device; and

executing a model of the communication device, wherein the model is responsive to the recorded input information.

28. The method of claim 27, wherein utilizing the recording module comprises utilizing the recording module to cause the recording of the input information to a memory device of a computer that is connected to the communication device.

29. The method of claim 27, wherein:

operating the communication device comprises running the communication device as a Windows device driver on a computer that is utilizing the communication device; and

utilizing the recording module comprises utilizing the recording module to cause the recording of the input information to a memory device of the computer.

30. The method of claim 27, wherein utilizing the recording module comprises utilizing the recording module to cause the recording of the input information a memory device of a

computer that is communicatively coupled to the communication device through a communication network.

31. The method of claim 30, wherein utilizing the recording module further comprises executing a recording application program on the computer.

32. The method of claim 27, wherein utilizing the recording module comprises utilizing the recording module to cause the recording of input data and input commands from a computer and input samples from a communication medium.

33. The method of claim 27, further comprising reading the recorded input information into a software model of the communication device.

34. The method of claim 27, wherein the model is a bit-exact software model of the communication device.

35. The method of claim 27, further comprising observing execution of the model on the recorded input information.

36. The method of claim 35, wherein observing execution of the model comprises executing a debugging tool communicatively coupled to the model.

37. The method of claim 27, further comprising observing execution of the model with the recorded input information in non-real-time.

38. The method of claim 27, wherein the communication device comprises a computer communication device.